

**Appendix J.**  
**Sample Site Management Plan - Arlington Reservoir**

## **1. Site Identification**

**1.1 Site Name:** Arlington Reservoir

**1.2 Plan Developed By:** David E. White / Ann LeRoyer, OSC

**Date:** January 2006

**1.3 Plan Reviewed By:** Open Space Committee

**Date:**

**1.4 Notes:**

## **2. Base Information**

**2.1 Location, Boundaries, and Acreage:** The Arlington Reservoir (Res) is located in the northwest corner of Arlington, on Lowell Street at the Lexington border; it is also accessible from the Minuteman Bikeway (Bikeway) by walking through Hurd Field and across the bridge at Mill Brook.

The boundaries, from east to north, are Lowell St.; private residences and Colonial Village Apartments in Arlington; Mill Brook; Sickie Brook; private residences on Rindge Avenue in Lexington; Rindge Park Playground; and Busa Farm in Lexington.

The total area is about 65 acres, with 28 acres being under water when the Reservoir is full. About 21.3 acres are in Arlington and the balance is located in Lexington. (See Appendices for additional information.)

**2.2 Site History:** The Res was used as a town water supply from the early 1870s until Arlington joined the Metropolitan Water District (now known as the MWRA) in 1899. For years, the Res served as a popular summer swimming hole, and in 1935 the Arlington Board of Park Commissioners (now known as the Park & Recreation Commission – PRC) engaged the Works Progress Administration (WPA) to develop a sandy beach on the northeastern shore. The town improved the beach in the early 1980s, adding filters, a chlorination system, and an embankment to separate the swimming area from the rest of the reservoir. See the Reservoir website at <http://www.arlington2020.org/reservoir> for more information.

**2.3 Current Uses (primary and secondary):** Current uses include flood control, conservation of natural landscape, wildlife habitat and wetlands, as well as, active and passive recreation (walking, birding, swimming, fishing, jogging, track team use, and cross-country skiing).

The following Arlington Reservoir Goals related to uses and management in general were developed by the Vision 2020 Reservoir Committee (Res Comm) and approved by Town Meeting in Spring 2002:

- Water Quality – To attain and maintain, in an ecologically sensitive manner, the appropriate water quality standard;
- Water Management – To manage the Reservoir and its drainage to minimize downstream flooding, support wildlife habitat, and allow recreational uses;
- Flora and Fauna – To protect and enhance the health and diversity of native plants and wildlife consistent with protecting public safety and recreational uses;
- Public Use and Open Space – To promote and enhance public access for passive and active recreational uses while maintaining and protecting the unique natural setting of the Reservoir;
- Public Awareness – To enhance awareness of the ecological, economic, recreational, and esthetic values of the Arlington Reservoir and its setting.

**2.4 Current Ownership:** The Town of Arlington owns all the land around the perimeter of the Res and along Munroe Brook (see site plan). Although about two-thirds of the Res, Munroe Brook, and surrounding lands are within the town limits of Lexington, they are owned and managed by the Town of Arlington – similar to the situation with Arlington’s Great Meadows.

**2.5 Management Entity:** The Arlington Department of Public Works (DPW) has primary responsibility for maintenance of the Res area. The PRC manages the swimming beach, and the Arlington Conservation Commission (ACC) and Lexington Conservation Commission (LCC) have jurisdiction for water bodies and wetland areas. The Massachusetts Department of Environmental Protection, Office of Dam Safety and the U.S. Army Corps of Engineers (among other agencies) establish and monitor regulations for the dam itself.

**2.6 Reporting Entities and Other Contacts:**

DPW is the primary department for reporting problems;

PRC is responsible for the swimming beach;

Board of Health tests the water quality regularly, during swimming season;

ACC deals with environmental issues in Arlington, LCC in Lexington;

Police and Fire are contacted for public safety issues.

Lexington town departments are also notified of problems or issues, as appropriate, due to the site’s overlapping boundaries.

**2.7 Financial Support:** Most funds for maintenance come from the DPW budget. The swimming beach activities and facilities are supported through the Recreation program via user fees administered through the Recreation Enterprise Fund.

**2.8 Protection Status:** The Town of Arlington owns the land around the Res. There are no explicit conservation restrictions on this public land, but the entire area is designated through town zoning by-laws as an Open Space Zone. State and local bylaws protect the water body, wetlands, and bordering areas.

**2.9 Site Rules:** General town bylaws apply to the site. PRC has established rules for beach use (see appendix for Reservoir Beach Rules).

**2.10 Friends Group(s):** The Res Comm is actively engaged in monitoring the Res. The group’s website (<http://www.arlington2020.org/reservoir>) offers minutes of committee meetings and many other materials related to the Res. An East Lexington-based friends group has formed recently to steward Rindge Avenue Park and playground on the Lexington side of the Res. (<http://www.rindgepark.org/>)

**2.11 Handicapped Accessibility:** There is handicapped-accessible parking in the summer when the beach parking lot is open. An access ramp with handrail leads into the water at the beach, but paths are sandy and often uneven. The walking path around the Res is relatively level but not really suitable for the mobility-impaired as it is uneven with tree roots and narrowed in places by overgrowth. Some new pathways built as part of the dam remediation project are ADA accessible, but others are surfaced with stone dust, thus are similar to the existing paths.

**2.12 Natural Resources:** The Res is one the town’s most natural public spaces, except for the swimming beach area. The mile-long walking trail that circumvents the water offers many opportunities to observe wildlife and mixed vegetation. A very active birding community in Arlington and the region has reported more than 130 species of birds. More information can be found at the Menotomy Bird Club website (<http://mrines.com/Birds/Arlington/>) .

Snapping and painted turtles are often seen in and around the water. Common small mammals include chipmunks, squirrels, and rabbits. Other natural history information is available at <http://www.arlington2020.org/environment/nature.html>.

When the water level of the Res is high, mostly during the summer months, the water area is about 28 acres. Parts of Mill Brook, Munroe Brook and Sickie Brook are within the Res boundaries, and through late spring, the exposed mud flats are a prime area for ducks and shore birds. The changing water levels and seasonal activities provide a unique habitat for animals and plants around the Res, as well as for human users.

**2.13 Outstanding Issues (prioritized):**

1. Dam repair and landscape remediation – The construction activity began in June 2005, and the dam repair and construction clean up was substantially completed by November 2005. Landscape remediation will begin in the spring of 2006. Some town funds are available for landscape work, but volunteer work projects and private donations will also be necessary to implement some of the improvements.
2. Geese control in the beach area – The PRC continues its protocol of using dogs, installing fencing on the berm, and adding goose eggs to discourage geese from nesting and entering the swimming area during the late spring and summer.
3. Year-round access – During the swimming season (generally late June to late August), access to the playground and beach is limited to those who have paid for Res tags. Parking is available during that season to anyone, but the lot is closed during the rest of the year. The Res Comm plans to address this concern about complete, year-round access as part of the landscape remediation, after the dam work is completed.
4. Future uses / development of Busa Farm – A few years ago, housing construction was proposed on part of the Busa Farm land, but a variance for that project was denied by the Lexington Zoning Board of Appeals. Farmer Fran Busa, working with Arlington resident Oakes Plimpton and other Arlington and Lexington residents, established a Community Supported Agriculture (CSA) program at the farm in the summer of 2005. This program helps the farm with volunteer labor, raises funds through CSA memberships, and addresses local concerns about the farm's viability so that it is not again threatened by development.
5. Trash and dumping of yard waste – Illegal and unsightly dumping is a problem, primarily in the wooded area adjacent to Lowell Street and next to Busa Farm in Lexington. Other trash collection around the trails is done regularly by DPW staff and by volunteers and considerate walkers.
6. Snow dumping – The town does not have many places available for dumping large amounts of snow removed from schools, Massachusetts Ave. commercial areas and other locations. The parking lot has been considered as one possible site for this use.
7. Eutrophication – The primary water sources for the Res (Munroe Brook and various storm drains) come from fairly dense suburban areas in Lexington and Arlington and carry a heavy load of nutrients. This presents the risk of excessive nutrient load and eutrophication leading to injury to the current aquatic life. In previous years, this high nutrient level led to a near total coverage of the water surface with water chestnuts each summer. A mechanical harvesting program has been effective in controlling this problem and has at the same time removed nutrients in the form of the harvested plants. However,

new problems may occur in the form of algal blooms or other types of invasive plants that are not as easily managed as water chestnuts.

8. Erosion along the trails – Some of the trails are close to the shoreline and would benefit from some repair and stabilization work. Erosion along the shoreline comes from two sources: 1. people walking down the shore to fish; and 2. deteriorating storm drains that empty into the Res. The first could be remedied by stabilizing some of the fishing spots. The second would require rebuilding and stabilizing the outlets (several of which are in Lexington).
9. Invasive plants – Some of the trails in Lexington are bordered with thick stands of poison ivy. Its removal would likely require use of herbicides, needing approval of the LCC, followed by replanting of more benign native plants. Japanese Knotweed is also present along the dam berm, and strong preventative measures will be needed to keep it from spreading.
10. Education of abutters about fertilizers and encroachments on shoreline vegetation – Some abutters appear unclear about property boundaries and have extended their lawns onto public land and have in some cases cut brush from along the shoreline. Other residents regularly dump leaves and other yard waste on the public land around the Res. Some outreach and education are needed in this regard. Since most of the watershed is in Lexington, the Town of Arlington would need to find out about the Town of Lexington's programs for limiting fertilizer use and work with them on the issue.

**2.14 Notes:**

**3. Management Guidelines**

**3.1 Maintenance Schedule:** Beach area – PRC manages the seasonal opening and closing of the beach operation and oversees installation of the snow fence on the berm (designed to discourage geese from the swimming area). The hired beach staff submits an annual Beach Manager's Report to the Recreation Department, noting issues and improvements needed in the future. DPW mows the lawn, collects trash, and does basic grounds maintenance during the season, or as needed at other times of the year. With regular testing, the Board of Health monitors water quality standards and announces beach closings, if necessary.

Other areas – DPW controls the water level via the floodgate, especially in anticipation of and during heavy storms. DPW lowers the water level in the fall and raises it in the spring, before beach season (the berm around the beach is permeable, so the water level is kept high throughout the summer).

**3.2 Maintenance Standards:** TBD

**3.3 Long-term Landscaping and Maintenance Plans:** DPW and Weston and Sampson, the dam repair engineers, are documenting formal guidelines for managing the water level of the Res and operation and maintenance of the dam mechanisms. Principles for re-landscaping the area around the dam will include ecologically sensitive maintenance and weed control and replanting with native species.

**3.4 Usage and Restrictions:** The general rules and restrictions regarding town land apply. General Arlington bylaws apply on the town's side, and Lexington bylaws apply on that side of the boundary line. The beach area is fenced and restricted to supervised swimming during

the summer season. Passive recreation is permitted for the other areas, including walking, jogging, bird watching and fishing.

**3.5 Notes on Management Matters:**

**4. Capital Improvement Information**

**4.1 Capital Improvements (description of past and current projects):** The Massachusetts Office of Dam Safety declared the earthen dam a hazard because the trees growing on it could weaken the dam, and if it were to breach, serious flooding damage would result. In 2004, the Town finalized a plan, developed by Weston and Sampson, to insert a steel sheet I-wall and rebuild the existing dam mechanisms, bridge, gate, and spillway. An additional spillway and bridge were also added. The construction included a new graded pathway covered in pea stone and, most importantly from an aesthetic and open space point of view, retained most of the trees and natural landscape. The project was substantially completed in November 2005. In March 2006, the project was a gold winner at the American Council of Engineering Companies of Massachusetts (ACEC/MA) Engineering Excellence Awards competition, which recognizes engineering achievements that demonstrate the highest degree of merit and ingenuity. Funding for the dam work was provided through the Town's capital budget.

**4.2 Proposed Capital Improvements (description of recommended and proposed changes, timeline, estimated costs, etc.):** Replanting 100 trees to comply with the ACC order of conditions for the dam project and additional landscaping around the renovated dam and in the former stump dump area are being planned. Planting is expected to take place in fall of 2006 and will be funded with dam project funds and private donations.

The PRC has tentatively planned a beach area capital improvement project for FY'09. Repairs to the bathhouse and pump house, an overhaul of the filtration system and improved access are under consideration. The project will incorporate suggested improvements obtained through input from the community and Res Comm.

**4.3 Evaluation of Capital Improvements:** TBD

**Appendices**

- A. Geographic Information System (GIS) site map (from Town Planning Dept.)**
- B. Existing management/maintenance plan (from Weston & Sampson)**
- C. End of season beach report**
- D. Beach rules**
- E. "A Tour of the Arlington Reservoir" document**  
see <http://www.arlington2020.org/reservoir/Res%20Tour%20v2.pdf>